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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,598	10/24/2003	Hae Il Park	27427.006.00-US	7297

30827 7590 04/18/2007  
MCKENNA LONG & ALDRIDGE LLP  
1900 K STREET, NW  
WASHINGTON, DC 20006

EXAMINER
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WALFORD, NATALIE K

ART UNIT	PAPER NUMBER
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2879

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/18/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/691,598	<b>Applicant(s)</b> PARK, HAE IL	
	<b>Examiner</b> Natalie K. Walford	<b>Art Unit</b> 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-20 and 22-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-20 and 22-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 12, 2007 has been entered.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Koizumi (JP 04-262345).

Regarding claim 20, Koizumi discloses a core (item 1) in figures 1 and 2 of a cathode ray tube, comprising: a pair of split cores (items 3 and 4) fixable to each other, wherein a first opening and a second opening opposing the first opening are definable by the pair of split cores; an attaching portion (area surrounding items 2, 5, and 6) wherein a protruding portion of attaching portion protrudes above an exterior surface of the split cores (see FIG. 2); and attachment grooves (items 5 and 6) adjacent to the attachment portion, wherein the attachment grooves formed on the exterior surface of the split cores (see FIG. 2), wherein the thickness of

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the split cores between the attachment grooves is different than a thickness of a portion of the split cores defining the first opening (see FIG. 2), and wherein the thickness of the portion of the split core proximate to a portion of the attachment grooves is greater than the thickness from the attachment groove to the inside surface of the split core (see FIG. 2) and the thickness of a portion of the core between attachment grooves is greater than the thickness of another portion of the core proximate to a portion of the attachment grooves (see FIG. 2). The Examiner notes that it is understood by figure 1 of Koizumi that the attaching portion is smaller than the core, since the attaching portion does not extend the vertical length of the core. Koizumi also shows that, in figure 2, the thickness of the core is greater than the thickness from the attachment groove to the inside surface of the core. It is understood by figure 2 that the core is obviously thicker than the attachment groove, since the attachment groove does not extend the entire width of the core. The Examiner also notes that the thickness of the core between the attachment grooves (area between items 5 and 6) is greater than the thickness of the core proximate to the attachment grooves (area between item t and 5 or 6) as seen in figure 2.

Regarding claim 22, Koizumi discloses the core according to claim 20, wherein the thickness of the split cores between the attachment grooves is greater than a thickness of a portion of the split cores defining the first opening (see FIGS. 1 and 2).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 7, 9-16, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US PUB 2002/0190630) in view of Koizumi (JP 04-262345).

Regarding claim 1, Lee discloses a cathode ray tube in figure 1, comprising: a glass front panel (item 1); a funnel (item 6) fastened to the panel, the funnel including a neck part and a screen part opposing the neck part, wherein the screen part is fastened to the panel; a fluorescent screen (item 3) formed on an interior surface of the panel; a shadow mask (item 2) disposed a predetermined distance from the fluorescent screen; an electron gun (item 5) coupled to the neck part for emitting electron beams, the electron beams formed of a plurality of electrons; a deflection yoke (item 4) for deflecting electrons within the electron beams in horizontal and vertical directions, wherein the deflection yoke includes a horizontal deflection coil (FIG. 9, item 41) for horizontally deflecting electrons within the electron beams and a vertical deflection coil (FIG. 9, item 42) for vertically deflecting electrons within the electron beams; a core (FIG. 9, item 44) for reducing loss in the strength of a magnetic field generated by the horizontal and vertical deflection coils; and a holder (FIG. 2, item 43 and paragraph 50) for holding and insulating the horizontal and vertical deflection coils, but does not expressly disclose that the core includes an attaching portion and attachment grooves along an edge portion of the attaching portion, wherein the attachment grooves are formed on the exterior surface of the split cores, wherein along a cross section perpendicular to an axis of the funnel, a thickness of the attaching portion of the core is different from a thickness of a portion of the core proximate to a portion of the funnel fastened to the panel, wherein the thickness of a portion of the core proximate to a portion of the attachment grooves is greater than the thickness from the attachment groove to the

inside surface of the core and the thickness of a portion of the core between attachment grooves is greater than the thickness of another portion of the core proximate to a portion of the attachment grooves (see FIG. 2), as claimed by Applicant.

Koizumi is cited to show a core (item 1) in figure 1 for a cathode ray tube that has an attaching portion (area surrounding items 2, 5, and 6) and attachment grooves (items 5 and 6) formed on the exterior surface of split cores (items 3 and 4). Koizumi also shows that the thickness of the attaching portion of the core (area surrounding items 2, 5, and 6) is different from a thickness of a portion of the core (item 1). It is understood by figure 1 of Koizumi that the attaching portion is smaller than the core, since the attaching portion does not extend the vertical length of the core. Koizumi also shows that, in figure 2, the thickness of the core is greater than the thickness from the attachment groove to the inside surface of the core. It is understood by figure 2 that the core is obviously thicker than the attachment groove, since the attachment groove does not extend the entire width of the core. The Examiner also notes that the thickness of the core between the attachment grooves (area between items 5 and 6) is greater than the thickness of the core proximate to the attachment grooves (area between item 1 and 5 or 6) as seen in figure 2. Koizumi teaches that this sort of core can demonstrate lower strength cracks, which could lead to difficulty in joining of the split cores (paragraph 6).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lee's invention to include the core including an attaching portion and attachment grooves along an edge portion of the attaching portion, wherein the attachment grooves are formed on the exterior surface of the split cores, wherein along a cross section perpendicular to an axis of the funnel, a thickness of the attaching portion of the core is

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different from a thickness of a portion of the core proximate to a portion of the funnel fastened to the panel, wherein the thickness of a portion of the core proximate to a portion of the attachment grooves is greater than the thickness from the attachment groove to the inside surface of the core as suggested by Koizumi for having lower strength cracks in the split cores.

Regarding claim 2, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, wherein the thickness of the attaching portion is greater than the thickness of the portion of the core proximate to the screen part (Lee; FIG. 1 and Koizumi; FIG. 1).

Regarding claim 7, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, wherein the thickness of the core adjacent to the attaching portion is about  $\frac{1}{3}$  to about  $\frac{2}{3}$  the thickness of the core including the attaching portion (Koizumi; FIG. 2). The Examiner notes that Koizumi shows in figure 2 that the attaching portion is about half the width of the core, which is between  $\frac{1}{3}$  and  $\frac{2}{3}$ .

Regarding claim 9, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, but does not expressly disclose that a depth of the attachment grooves is about  $\frac{1}{3}$  to about  $\frac{2}{3}$  the thickness of the attaching portion of the core between the attaching grooves, as claimed by Applicant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a depth of the attachment grooves about  $\frac{1}{3}$  to about  $\frac{2}{3}$  the thickness of the attaching portion of the core between the attaching grooves, since it has been held that discovering an optimum or workable range involves only routine skill in the art.

Regarding claim 10, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, but do not expressly disclose that an actual depth of the attachment grooves is about 2mm to about 3.5mm, as claimed by Applicant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have an actual depth of the attachment grooves about 2mm to about 3.5mm, since it has been held that discovering an optimum or workable range involves only routine skill in the art.

Regarding claim 11, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, but do not expressly disclose that the two attachment grooves are spaced apart from each other by a distance of about 10mm to about 14mm, as claimed by Applicant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the two attachment grooves spaced apart from each other by a distance of about 10mm to about 14mm, since it has been held that discovering an optimum or workable range involves only routine skill in the art.

Regarding claim 12, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, wherein an exterior surface of the attaching portion of the core between the attachment grooves protrudes from the major exterior surface of the core (Koizumi; see FIGS. 1 and 2).

Regarding claim 13, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, wherein the core includes ferrite (Lee; paragraph 55).

Regarding claim 14, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, wherein a bottom exterior surface of the attachment groove and a



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surface contactable by a clamp are joined together at a corner having a curvature with a predetermined radius, R (Koizumi; see FIGS. 1 and 2).

Regarding claim 15, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 14, wherein R is between about 1 mm and about 2 mm, as claimed by Applicant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have R between about 1 mm and about 2 mm, since it has been held that discovering an optimum or workable range involves only routine skill in the art.

Regarding claim 16, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, wherein the attachment grooves extend to an end portion of the core proximate to the screen part (Koizumi; see FIGS. 1 and 2).

Regarding claim 18, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, wherein an interior surface of the funnel has a cross section, perpendicular to the axis of the funnel, that gradually changes from a substantially circular shape at the neck part to a substantially non-circular shape at the screen part (Lee; see FIG. 1).

Regarding claim 19, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, wherein an exterior surface of the funnel has a cross section, perpendicular to the axis of the funnel, that gradually changes from a substantially circular shape at the neck part to a substantially non-circular shape at the screen part (Lee; see FIG. 1).

Claims 3-6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US PUB 2002/0190630) in view of Koizumi (JP 04-262345) in further view of van der Meer et al (US 4,730,145).

Regarding claim 3, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, but do not expressly disclose that the thickness of the portion of the core proximate the screen part is about 3mm to about 6mm, as claimed by Applicant. Van der Meer is cited to show the thickness of a core in a cathode ray tube proximate to the screen part is about 3mm to about 6 mm (column 2, lines 36-42). Van der Meer teaches that use of a thin-walled core can help result in a substantially stress-free core (column 1, lines 56-64).

Therefore, it would have been obvious of one of ordinary skill in the art at the time of invention to modify the combined device of Lee and Koizumi to include a core thickness of about 3mm to 6mm as suggested by van der Meer in order to have a stronger core.

Regarding claim 4, the combined reference of Lee, Koizumi, and van der Meer disclose the cathode ray tube according to claim 3, wherein the thickness of the portion of the core proximate the screen part is about 4mm to about 5mm (van der Meer; column 2, lines 36-42).

Regarding claim 5, the combined reference of Lee, Koizumi, and van der Meer disclose the cathode ray tube according to claim 3, wherein that the thickness of the attaching portion of the core is about 4mm to about 6mm (van der Meer; column 5, lines 21-27).

Regarding claim 6, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, but do not expressly disclose that the thickness of the attaching portion of the core is about 4mm to about 6mm, as claimed by Applicant. Van der Meer is cited to show the thickness of an attaching portion of the core in a cathode ray tube is about 4mm to about 6mm (column 5, lines 21-27). Van der Meer teaches that use of a thin-walled core can help result in a substantially stress-free core (column 1, lines 56-64).

Therefore, it would have been obvious of one of ordinary skill in the art at the time of invention to modify the combined device of Lee and Koizumi to include an attaching portion of a core of about 4mm to 6mm thickness as suggested by van der Meer in order to have a stronger core.

Regarding claim 17, the combined reference of Lee and Koizumi disclose the cathode ray tube according to claim 1, wherein the core weighs between about 160g and about 180g, as claimed by Applicant. Van der Meer is cited to show a cathode ray tube with a core that weighs approximately between 120g and 360g (column 5, lines 25-27).

Claims 23- 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koizumi (JP 04-262345) in view of van der Meer at el (US 4,730,145).

Regarding claim 23, Koizumi discloses the core according to claim 20, but does not expressly disclose that the thickness of a portion of the split cores defining the first opening is about 3mm to about 6mm, as claimed by the Applicant. Van der Meer is cited to show the thickness of the split cores is about 3mm to about 6mm in a cathode ray tube (column 2, lines 36-42). Van der Meer teaches that use of a thin-walled core can help result in a substantially stress-free core (column 1, lines 56-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Koizumi's device to include the thickness of a portion of the split cores defining the first opening about 3mm to about 6mm as suggested by van der Meer in order to have a stronger core.

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Regarding claim 24, the combined reference of Koizumi and van der Meer disclose the core according to claim 23, wherein the thickness of a portion of the split cores defining the first opening is about 4mm to about 5mm (van der Meer; column 2, lines 36-42).

Regarding claim 25, Koizumi discloses the core according to claim 20, but does not expressly disclose that the thickness of the split cores between the attachment grooves is about 4mm to about 6mm, as claimed by the Applicant. Van der Meer is cited to show split cores with thickness of about 4mm to about 6mm (column 2, lines 36-42). Van der Meer teaches that use of a thin-walled core can help result in a substantially stress-free core (column 1, lines 56-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Koizumi's device to include the thickness of the split cores between the attachment grooves is about 4mm to about 6mm as suggested by van der Meer in order to have a stronger core.

### ***Response to Arguments***

Applicant's arguments filed February 12, 2007 have been fully considered but they are not persuasive. The Examiner respectfully disagrees with Applicant's arguments. The Examiner points to figure 2 of Koizumi which clearly shows the thickness of a portion of the core between the attachment grooves is greater than the thickness of another portion of the core proximate to a portion of the attachment grooves.

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***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalie K. Walford whose telephone number is (571)-272-6012. The examiner can normally be reached on Monday-Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

nkW

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4/9/07

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PRIMARY PATENT EXAMINER